



**INTERNATIONAL HYDROGRAPHIC ORGANIZATION  
NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION**



**CAPACITY BUILDING PLAN**  
Programme document for the period 2013-2017

## 1. INTRODUCTION

### 1.1. Rationale

The Indian Ocean provides major sea routes connecting the Middle East, Africa, and East Asia with Europe and the Americas. It carries a particularly heavy traffic of petroleum and petroleum products from the oilfields of the Persian Gulf and Indonesia. Every year some 100,000 cargo ships pass through the Indian Ocean, as well as 66% of the world's oil shipments. Its fish are of great and growing importance to the bordering countries for domestic consumption and export. Fishing fleets from Russia, Japan, South Korea, and Taiwan also exploit the Indian Ocean, mainly for shrimp and tuna. Large reserves of hydrocarbons are being tapped in the offshore areas of Saudi Arabia, Iran and India. An estimated 40% of the world's offshore oil production comes from the Indian Ocean. Beach sands rich in heavy minerals and offshore placer deposits are actively exploited by bordering countries, particularly India, Indonesia, Sri Lanka, and Thailand. For these reasons, it is crucial that SOLAS contracting Governments undertake hydrographic surveys as and when required, that they arrange for the compilation and publication of hydrographic data, the dissemination and keeping up to date of all nautical information necessary for safe navigation.

The IHO Capacity Building Strategy classifies the development of hydrographic services into three phases:

- those which are in Phase 1: Collection and circulation of nautical information, necessary to maintain existing charts and publications up to date;
- those which are in Phase 2: Creation of a surveying capability to conduct coastal and offshore projects; and
- those which are in Phase 3: Produce paper charts, ENC and publications independently.

Coastal/maritime states have certain treaty obligations (SOLAS) placed on them and the IHO/NIOHC effort aims at assisting states in meeting these obligations. To achieve this a national understanding and coordination effort is required noting that:

- resources (human, time, finance etc) are limited, consequently prioritization is a fundamental issue;
- planning must be realistic;
- longer term training such as CAT A or B are not covered because such training is out of the scope of the IHO CB budget.

Nowadays, the rapidly evolving technology has replaced old navigation paradigms and demands continuous investments in education and training so that the Hydrographic Services can continue to provide high quality products and services which satisfy new demands of the maritime community.

NIOHC is aware of its Member States' efforts to provide quality service to the international maritime community in order to contribute to the safety and security of

navigation and human life at sea as well as the preservation of the environment in its region and, as part of the IHO community, to contribute to the achievement of the objectives and directions of the Organization.

## 1.2. Aims and objectives

The aims of the Plan are:

- a) to train staff, at various levels, to ensure a much needed capability on hydrography and nautical cartography, particularly after natural disaster or other incidents which could affect water depths in harbours and approaches; and
- b) to comply with the IHO resolutions and guidelines regarding hydrographic and nautical cartographic activities.

The medium term objective of this Plan are:

- a) to ensure a basic level of MSI is established in all coastal states to, produce Local/Coastal/NAVAREA Warnings, communicate effectively with the charting authority and implement the MSI elements of GMDSS;

The longer term objectives are:

- a) to instruct staff in the region on the methods of carrying out hydrographic surveys, to improve safety of navigation through enhanced navigational products;
- b) to promote the establishment of Hydrographic Services (HS) and the evolution of CB Phases of the established ones.

## 1.3. Priorities

Despite the breadth of need existing in the Region, for the period of 2013 to 2017, priorities should be set in the sequence of the following list, the first of which are the highest:

- 0 - activities which may promote awareness of national hydrographic obligations;
- 1 - activities which may improve the capacity of existing HS in Phase 1;
- 2 - activities which may improve the capacity of existing HS in Phase 2; and
- 3 - activities which may improve the capability of existing HS in Phase 3.

Note the link between the training activities listed in paragraph 2. Activities below, and phases 0 to 3 listed above

The current hydrographic capacity status of countries/territories of the region is in Annex **A**.

## 1.4. Methodology and Procedures

This Plan will be reviewed each year, and adjustments made as necessary.

Each year the Commission will decide responsibilities for the programmed events of the subsequent year.

The NIOHC Capacity Building Coordinator will send to the Chair, no later than January 31<sup>st</sup> of each year details of all planned projects. The projects must be written in the standards established by the IHO CBSC (see Annex **B**).

Projects supported by IHO CB Fund must follow the IHO CBSC procedures published at the IHO website.

The Chair will check the proposed projects and, if requesting IHO CB Fund support, will send them to the IHO CBSC Chair and Secretary no later than MARCH 15<sup>th</sup>, otherwise, will take the appropriate action.

## 2. Activities

Phase	Activity	Project Objective	Target Audience
0.1	Technical visits Type 1 High level technical visit to governmental authorities	To raise government awareness of their SOLAS treaty obligations	Related Ministries and Heads of National Agencies,

Phase	Activity	Project Objective	Target Audience
			particularly governmental decision makers
0.2	<u>Technical visits Type 2</u> Technical assessment and advice visit	Provide advice to identify how coastal states meet their hydrographic and MSI responsibilities	Maritime Sector National Agencies. Stakeholders and decision makers
1.1	<u>MSI Course (3 days)</u> Training on establishment of MSI structure and basic MSI procedures	To establish a core group of trained persons to deal with MSI	MSI Practitioners
1.2	<u>Phase 1 Skills (5 days)</u> An introduction to the assessment and promulgation of navigationally significant data	To provide a core group with the skills and knowledge to assess and promulgate navigationally significant information to the wider maritime community (this course supports the MSI course)	MSI Practitioners
2.1	<u>Basic Hydrographic Survey Course (10 days)</u>	To provide awareness of national hydrography, hydrographic surveying and nautical cartography	Maritime Sector Decision Makers
2.2	<u>Port and Shallow Water Survey Course (5 days)</u>	A workshop to aid exchange of information and ideas about the challenges faced by port and shallow water surveyors in the NIOHC region	Port Surveyors
2.3	<u>MBES Processing (5 days)</u>	To train a group of hydrographic surveyors the techniques required to post-process MBES data	Hydrographic Practitioners
2.4	<u>MSDI and Database Management (5 days)</u>	To give participants an understanding of spatial data infrastructures (SDI) including the importance and role of data management and databases	Government Planners
2.5	<u>Tides and Water Level Workshop (5 days)</u>	To provide fundamental knowledge and understanding of tides and water level, and their applications for hydrographic surveying and mapping activities	Hydrographic Practitioners
2.6	<u>Seabed Classification Workshop (5 days)</u>	To provide a group of professionals with the skill and knowledge to use acoustic techniques to map extensive seabed surfaces and to determine the products of seabed mapping	Hydrographic Practitioners
3.1	<u>Basic ENC and ENC Production course (10 days)</u>	To train a group of professionals with a practical introduction to S-57 data	Cartographic Practitioners
3.2	<u>ENC Production and QA (5 days)</u>	To train a group of professionals to verify and validate S-57 data	Cartographic Practitioners
3.3	<u>Module 1 – Marine Cartography of the CAT B Cartographic Course (5 weeks)</u>	To provide participants delegates with a practical understanding of nautical cartography and the necessary skills to carry out routine nautical cartographic skills	Cartographic Practitioners

<b>Phase</b>	<b>Activity</b>	<b>Project Objective</b>	<b>Target Audience</b>
3.4	<u>Module 2 – Hydrographic Data Processing of the CAT B Cartographic Course (5 weeks)</u>	To provide participants with a practical understanding of hydrographic data processing the skills to carry out accurate assessment and an appreciation of the issues surrounding chart maintenance	Cartographic Practitioners
3.5	<u>Module 3 – Electronic Navigational Charts (ENC) of the CAT B Cartographic Course (5 weeks)</u>	To provide a group of professionals with the skill and knowledge to produce ENCs	Cartographic Practitioners
3.6	<u>Law of the Sea Workshop (5 days)</u>	To teach participants the basic technical principles applicable to maritime boundary delimitation. The delegates should be from technical hydrographic or cartographic backgrounds	Maritime Sector Decision Makers
3.7	<u>Tsunami inundation mapping workshop (5 days)</u>	To improve the modelling and presentation of regional tsunami inundation maps	Maritime Sector and emergency planning

### **3. Capacity Building Program**

The program of capacity building activities for the period 2013 – 2017 is detailed in Annex **C**.

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**NIOHC Counties/Territories Capacity Building Phase Stage**Reference: [http://www.iho-ohi.net/mtg\\_docs/CB/CBA\\_TechnicalVisits.htm](http://www.iho-ohi.net/mtg_docs/CB/CBA_TechnicalVisits.htm)

	Country / Territory	CB Phase 0	CB Phase 1	CB Phase 2	CB Phase 3	Last TV
1	Bangladesh		Self	Self	Self	2012
2	British Indian Ocean Territories		UKHO	UKHO	UKHO	N/R
3	Djibouti		Self	SHOM	SHOM	N/R
4	Egypt		Self	Self	Self/UKHO	
5	Eritrea	?	?	?	UKHO	
6	India		Self	Self	Self	N/R
7	Israel		Self	Self	Self/UKHO	
8	Jordan	?	?	?	UKHO	
9	Maldives		?	INHO	INHO/UKHO	2008*
10	Mauritius		Self?	INHO	INHO/UKHO	2012
11	Myanmar		Self	Self	Self/UKHO	2008*
12	Oman		Self	Self	Self/UKHO	2007
13	Pakistan		Self	Self	Self	N/R
14	Saudi Arabia		Self?	Self?	UKHO	2007
15	Seychelles		Self?	INHO	INHO/UKHO	2012
16	Somalia	?	?	?	UKHO	
17	Sri Lanka		Self	?	Self/UKHO	2014
18	Sudan	?	?	?	UKHO	2007
19	Thailand		Self	Self	Self	2008*
20	Yemen		?	?	UKHO	2007

\* IOC/IHO (IO COAST-MAP Joint project) consolidated report

**KEY TO REQUIRED TRAINING ACTIVITY**

	Technical visit
	MSI Training and development
	Hydrographic survey training and development
	Cartographic training and development



PROJECT SUBMISSION MODEL
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**IDENTIFICATION**

Project Number :
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<b>Project Name:</b>	
<b>Submitting RHC/Country:</b>	
<b>Date:</b>	
<b>Institution executing the project:</b>	
<b>Name of responsible:</b>	
<b>Address:</b>	
<b>Telephone:</b>	
<b>Fax:</b>	
<b>e-mail:</b>	

**GENERAL SPECIFICATIONS**

(Please provide detailed information in Annex of no more than three pages)

<b>Background information</b>	
<i>Justification of the project</i>	

<i>Countries involved</i>	
<b>Exposition of the problem</b>	
<b>General objective</b>	
<b>Specific objectives</b>	
<b>Outputs/Products</b>	
<b>Other deliverables</b>	
<b>Achievements and awaited benefits</b>	

<b>Schedule of activities</b>	
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**RESOURCES**

<b>Contribution by countries involved</b>	
<b>Contribution</b>	

<b>by other parties</b>	
<b>Contribution expected from CBCFund</b>	
<b>Total Cost (euros)</b>	
<b>Breakdown of costs</b>	
<b>From CBC Fund (item and amount)</b>	

**PROJECT SUMMARY**

<b>Sponsor RHC</b>	<b>Year of Execution</b>	<b>Country/ Countries involved</b>	<b>Priority/ Status</b>	<b>Project Name</b>	<b>Project Objective</b>	<b>Benefits</b>	<b>Assistance required</b>	<b>Cost</b>	<b>Allocation and Priority (to be filled by CBC)</b>	<b>Contact Person</b>

**Name and Signature of the RHC Chairman .....**



## Capacity Building Program for the period 2013 – 2017

## 2013

Activity	Beneficiaries Countries / Territories	Responsible	Period	Obs.
Technical and Advisory Visits	Eritrea and Sudan	IHO and NIOHC		
Basic ENC and ENC Production Course (10 days)	For identified coastal states	NIOHC CB Coordinator	Sept 13	5 + 5 IMO organized activity (1 <sup>st</sup> Semester 2013)
Advanced Chart Production	Sri Lanka	NIOHC CB Coordinator	Feb 13	CARIS to provide instructor
MBES Processing (5 days)	Saudi Arabia + NIOHC members	NIOHC CB Coordinator	Feb 13	4 + 6 The CBSC did not accept this submission at its meeting in Singapore June 2012

Note from the 13<sup>th</sup> NIOHC meeting:-

Attendees were encouraged to vote for which training courses they thought would be most beneficial for the region and the yellow highlighted activities in the 2014 table below were the result.

The National Reports indicated a further number of focused country specific activities are required. These are presented in green below, and a Paper Chart Production course for Myanmar and an ENC Production Course for Bangladesh were submitted for funding (subsequently amended to x2 ENC Production courses after a request to change from Myanmar).

Further to this, the INHO proposed a separate activity to meet these requirements – an all embracing survey/processing/paper chart and ENC production course for two staff from each of these nations. The INHO suggested this should be priority 1 for the region. The CBSC didn't accept this submission because it was too expensive and not priority 1.

## 2014

Activity	Beneficiaries Countries / Territories	Responsible	Period	Obs.
Technical and Advisory Visits	Jordan and KSA	IHO and NIOHC		

MSI Course (3 days)	For identified coastal states	NIOHC CB Coordinator	June 14	2 + 4
Basic Hydrographic Survey Course (10 days)	For identified coastal states	NIOHC CB Coordinator	Apr 14	4 + 4
Law of the Sea Workshop (5 days)	For identified coastal states	NIOHC CB Coordinator	Feb 14	4 + 6
MSDI and Database Management (5 days)	For identified coastal states	NIOHC CB Coordinator	Jan 14	4 + 6
Seabed Classification Workshop (5 days)	For identified coastal states	NIOHC CB Coordinator	May 14	4 + 6
Tides and Water Level Workshop (5 days)	For identified coastal states	NIOHC CB Coordinator	Feb 14	4 + 4
CARIS paper chart production course (1 week)	Bangladesh, Myanmar and Sri Lanka	NIOHC CB Coordinator and CARIS		
CARIS ENC Production course (1 week)	Bangladesh, Myanmar and Sri Lanka	NIOHC CB Coordinator and CARIS	CARIS identified Bangladesh and Myanmar	For Bangladesh and Myanmar
CARIS MBES processing course (duration to be determined)	Bangladesh, Myanmar and Sri Lanka	NIOHC CB Coordinator and CARIS	To be decided with CARIS	

Note from the 14<sup>th</sup> NIOHC meeting:-

The NIOHC CB Coordinator suggested the following activities for 2015:- an ENC Production and QA course, MBES Training, a LOS Workshop and x2 further CARIS based activities for two of Bangladesh, Myanmar and Sri Lanka. After some discussion the membership decided that a LOS Workshop was not a high priority and should be deferred to another year. Consequently the CB Coordinator will develop submissions for ENC and MBES courses together with CARIS MBES Processing for Bangladesh and Sri Lanka. Note the MBES training will be kindly supplied by IIC Technologies Ltd in their Visakhapatnam facility.

India suggested that national CB training opportunities/assets could be added to this Plan (see Annex D) and 'sea riding' opportunities should be offered whenever hydrographic surveying operations were in progress in the NIOHC region.

Bangladesh offered to invite NIOHC members onto their CAT B hydro survey course and will forward financial details to the CB Coordinator.

Bangladesh had an urgent requirement for Tides and Water Level training. The IHB encouraged Bangladesh to join the HSSC's TWLWG and additionally Bangladesh will be invited to the RSAHC Tides and Water Level workshop in 2014

## 2015

Activity	Beneficiaries Countries / Territories	Responsible	Period	Obs.
Basic ENC and ENC	For identified coastal	NIOHC CB	June 15	4 + 4

Production Course (10 days)	states	Coordinator		Oman suggested this course should be replaced by an advanced version
Law of the Sea Workshop (specialization Continental Shelf) at the suggestion of Oman	For identified coastal states	NIOHC CB Coordinator		
Tsunami inundation mapping workshop (5 days)	Saudi Arabia	NIOHC CB Coordinator	Aug 15	4 + 6
ENC Production and QA (5 days)	Saudi Arabia	NIOHC CB Coordinator	Oct 15	4 + 6
Port and Shallow Water Survey Course (5 days)	Saudi Arabia	NIOHC CB Coordinator	Jan 15	3 + 5

## 2016

Activity	Beneficiaries Countries / Territories	Responsible	Period	Obs.
Technical and Advisory Visits	Repeat visits to selected coastal states	IHO and NIOHC		
MSI Course (3 days)	For identified coastal states	NIOHC CB Coordinator	April 16	2 + 4
Basic Hydrographic Survey Course (10 days)	For identified coastal states	NIOHC CB Coordinator	May 16	4 + 4
MSDI and Database Management (5 days)	For identified coastal states	NIOHC CB Coordinator	June 16	4 + 4

## 2017

Activity	Beneficiaries Countries / Territories	Responsible	Period	Obs.
Technical and Advisory Visits	Repeat visits to selected coastal states	IHO and NIOHC		
Basic ENC and ENC	For identified coastal	NIOHC CB	April 17	4 + 6

Production Course (10 days)	states	Coordinator		Oman suggested this course should be replaced by an advanced version
Law of the Sea Workshop (5 days)	For identified coastal states	NIOHC CB Coordinator	June 17	2 + 4
Seabed Classification Workshop (5 days)	For identified coastal states	NIOHC CB Coordinator	Feb 17	2 + 4
Tsunami inundation mapping workshop (5 days)	Saudi Arabia	NIOHC CB Coordinator	Aug 17	4 + 4

Note: red ink indicates Oman suggestions

Note: blue ink indicates KSA suggestions

By way of explanation, the figures in the final column are KSA student number + NIOHC student number

**Annex D to CB Plan**

**Capacity Building Opportunities offered by NIOHC members**

<b>Country</b>	<b>Types of Training offered</b>
<b>Bangladesh</b>	
<b>Egypt</b>	
<b>India</b>	
<b>Oman</b>	
<b>Pakistan</b>	
<b>Saudi Arabia</b>	
<b>Thailand</b>	